

16360S01 - MEDIUM VOLTAGE DISTRIBUTION INTERRUPTER SWITCHES

All 15 KV interrupter switches shall be load break and provided as follows:

1. ABOVE GROUND Provide fused S&C pad mounted air switch or equal.
2. INTERIOR Provide fused S&C air switch or equal.
3. UNDERGROUND Provide Canada Power Products SF-6 interrupter switch or equal.

3.1. General

This specification outlines the requirements for manually operated SF-6 filled, load interrupting switches for subsurface applications.

1. UK only uses three phase 4-way and 4-way with a tie switch configurations. Any other switch configuration requires written justification and approval of the UK Campus Electrical Services Department. (Note: This is required to limit system exposure and facilitate failed circuit isolation should one of the switches become inoperable.)
2. The assembled unit will include 600 amp dead break cable connection bushings per ANSI/IEEE 386.
3. Switches must be furnished factory filled with an electrical grade of non-toxic, non-flammable SF6 gas, conforming to ASTM D-2472-71.
4. A pressure indicator, which provides visual status of both the insulating and interrupting dielectric, must be included.
5. 100% production testing shall include a mass spectrometer leak test, contact resistance test, AC one minute withstand and corona extinction tests.
6. The completed unit must be capable of withstanding internal failure without explosion or fire.
7. The switch shall be capable of being mounted in any position for best cable training and operation.
8. On each phase of all utilized circuits of a new or existing switch, a fault indicator shall be required. The fault indicator shall be rated at 1200 amps with inrush restraint, current reset and snap action clamp for cable with O.D. of 1.6". The approved fault indicator is the A.B.Chance fault indicator catalog number 1CRD1200SIR or equal. The fault indicator shall be installed and positioned to be read easily at safe distance.

3.2. Construction

1. The switch assembly shall utilize dead front, compact, sealed construction.
2. The contact system, interconnecting bus, operating mechanisms, and cable connection bushings shall be housed by a corrosion-resistant stainless steel tank.
3. The switch must be maintenance free, all welded construction, eliminating the use of gasketed seals. The weld process shall utilize a T.I.G inert gas and stainless steel filler rod to eliminate pinhole leaks and corrosion.

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4. Cable connection bushing will incorporate in internal secondary sealant to prevent SF6 leakage around molded flanges.
5. The operating shafts must be sealed by a flexible metal bellows (O-ring type seals are not acceptable).
6. Unless otherwise specified, cable connection and operating accessories shall be located so only single side access is required for operation and installation.
7. Operating handles shall be capable of being removed and stored or permanently attached.
8. Movement of the operating handles will actuate an internal spring mechanism causing the switch contacts to open or close and latch into position. The spring operator will utilize compression springs for long life and will provide positive position indication.
9. The switch contacts and interconnecting bus shall be plated copper with Belleville washers and locking fasteners to provide consistent pressure at bolted connection.
10. The contacts shall be self-aligning, wiping type, incorporating tungsten-copper arcing tips to prevent wear.
11. A special absorbent shall be included inside the switch tank, which will neutralize any arc byproducts.
12. Switches shall be furnished factory assembled and tested.
13. All necessary accessories for normal operation must be constructed of corrosion resistant materials.
14. Operating handles with padlock provisions in the open and closed position
15. Capable of operation by hook stick or rope with direction of movement clearly indicated.
16. Stainless steel nameplates providing information including ratings, contact position indication, circuit configuration and phase identification.
17. Color-coded pressure gage for visual indication of normal operating range, enclosed in a protective housing to prevent damage.
18. Brass fill-valve for field addition of SF-6 gas, protected and sealed with a removable cap.
19. 4/0 AWG clamp type ground lugs, one for each set of bushings.
20. Stainless steel switch tank coated with 8 MIL thick coal tar epoxy for maximum corrosion resistance, with lifting and mounting provisions.
21. 600 amp dead break bushings furnished with protective shipping caps.
22. Visible break with contacts visible through viewing windows and clear puffer tubes.
23. Mounting, lifting, grounding provisions.
24. Adjustable Handle adapter

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- 25. Motor Operator provisions
- 26. Fluorescent paint on position indicators
- 27. Permanently numbered switch ways

3.3. Ratings and Performance

The load interrupting switch shall be tested and rated per ANSI C37.71 and IEC 265 with minimal acceptable performance as follows:

Maximum design voltage	15.5	kV
BIL impulse withstand	95	kV
AC one minute withstand	35	kV
DC fifteen minute withstand	66	kV
Corona extinction at 3 PC sensitivity	11	kV
Open gap BIL impulse withstand	200	kV
Load interrupting and loop switching	600	A
Magnetizing and capacitive switching	25	A
Continuous Current	600	A
8 hour overload current	900	A
Asymmetrical momentary & 3 shot fault close	22, 500	A
Symmetrical one second rating	15, 000	A
600 A load interrupting operation endurance	1, 000	
Overload interrupting capability	3, 000	A
Mechanical life operations	2, 000	
Corrosion resistance per ASTM-B-117-54 in hours	2, 000	
Maximum gas leakage for estimating 30-year life	10-5	cc/sec
Normal operating pressure range	2-15	PSIG